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MUIRHEAD AND SATURNELLI, LLC
200 FRIBERG PARKWAY, SUITE 1001
WESTBOROUGH, MA 01581

EXAMINER	
HICKS, CHARLES V	

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2629	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/586,319	INOUE, MIKIO	
	Examiner	Art Unit	
	CHARLES V. HICKS	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 October 2011*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *4,6,7,12,13 and 15-22* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *4, 6-7, 12-13, 15-22* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☒ The drawing(s) filed on *14 July 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This communication is responsive to amendments filed 10/25/2011. Claims 4, 6, 7 and 15 are amended. Claims 4, 6-7, 12-13, 15-22 are pending.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 4, 6, 7, 15 and 18-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rafii et al. (6,614,422) in view of Fong et al. (US 2005/0012721) and further in view of Kloba (US 7,263,547), Brinjes (2002/0171633) and Takekawa (US 2001/0019325)

In reference to claim 4, Rafii teaches a mobile communication terminal (Rafii, Fig. 1A, 80), comprising:

image projection means for projecting a selected one of a plurality of predefined operation-plane images that displays virtually an operation-plane of an operation device operated by users (Rafii, Fig. 1A, 145; col. 4, ll. 27-33);

operation detection means for detecting operation on the selected operation-plane image projected by the image projection means (Rafii, Fig. 1A, 20; col. 10, ll. 27-34);

data processing means for performing a predetermined data process based on the detection result of operation detected by the operation detection means (Rafii, Fig. 3; col. 7, ll. 16-18);

wherein an application execution management means selects the selected one of the plurality of predefined operation-plane images for projection according to content of an application program and generates designation information that designates a designated recognition function corresponding to the selected predefined operation-plane image (Rafii, Fig. 1A,145; col. 4, ll. 27-33; Fig. 1A, 20; col. 10, ll. 27-34);

wherein the image projection means projects the selected predefined operation-plane image corresponding to the designated recognition function designated by the designation information received from the application execution management means, from among the plurality of predefined operation-plane images (Rafii, col. 4, ll. 27-33; projection of a grid or image);

and wherein the operation detection means has a plurality of kinds of mutually different recognition functions to recognize operation content by at least one of position, direction and movement of an operation object on the plurality of predefined operation-plane images (Rafii, col. 12, ll. 33-47),

and detects operation on the selected operation-plane image by using the designated recognition function designated from among the plurality of mutually

different recognition functions by the designation information received from the application execution management means (Rafii, col. 10, ll. 27-34).

Rafii however fails to expressly teach wherein at least part of the selected operation-plane image is changed during the operation on the selected operation-plane image according to detection of the operation content using the designated recognition function.

Fong discloses a virtual keyboard system, analogous in art with that of Rafii, wherein at least part of a selected image-plane image is changed during a operation on a selected operation-plane image according to detection of the operation content using a designated recognition function (Fong, fig. 3; pg. 2, par. 19).

At the time the invention was made, it would have been obvious to one having ordinary skill in the art to modify the operation detection means of Rafii, to include wherein at least part of a selected image-plane image is changed during the operation on a selected operation-plane image according to detection of the operation content using a designated recognition function, as taught by Fong.

As one of ordinary skill in the art would appreciate, the suggestion/motivation for doing so would have been to provide a feedback to a user that a key stroke has been entered from the virtual keyboard (Fong, pg. 2, par. 19).

Rafii as modified by Fong however fails to teach the application execution management means for managing application program execution environment of an application program selected from a plurality of application programs that is downloaded via a mobile communication network.

Kloba discloses a system for customizing content on a mobile device, analogous in art with that of Rafii as modified by Fong, containing application execution management means for managing application program execution environment of an application program selected from a plurality of application programs that is downloaded via a mobile communication network (Kloba, col. 4, ll. 37-41; col. 7, ll. 5-9; col. 11, ll. 15-21).

At the time the invention was made, it would have been obvious to one having ordinary skill in the art to modify the mobile communication terminal of Rafii as modified by Fong to include application execution management means for managing application program execution environment of an application program selected from a plurality of application programs that is downloaded via a mobile communication network, as taught by Kloba.

As one of ordinary skill in the art would appreciate, the suggestion/motivation for doing so would have been to enable the user to run multiple applications on a mobile device while on-line or off-line (Kloba, col. 1, ll. 36-39).

Rafii as modified by Fong and Kloba however fails to expressly teach wherein at least one of the plurality of mutually different recognition functions is a handwriting input function that detects movements of the operation object corresponding to a handwriting motion of a user, and wherein, for the designated recognition function being the handwritten input recognition function, the at least part of the selected operation-plane image is changed in a manner that tracks the handwriting motion.

Brinjes discloses a projected virtual input writing and display device, analogous in art with that of Rafii as modified by Fong and Kloba, wherein at least one of the plurality of mutually different recognition functions is a handwriting input function that detects movements of the operation object corresponding to a handwriting motion of a user, and wherein, for the designated recognition function being the handwritten input recognition function, the at least part of the selected operation-plane image is changed in a manner that tracks the handwriting motion (Brinjes, pg. 5-6, par. 75-76).

At the time the invention was made, it would have been obvious to one having ordinary skill in the art to modify the recognition function of Rafii as modified by Fong and Kloba wherein at least one of the plurality of mutually different recognition functions is a handwriting input function that detects movements of the operation object corresponding to a handwriting motion of a user, and wherein, for the designated recognition function being the handwritten input recognition function, the at least part of the selected operation-plane image is changed in a manner that tracks the handwriting motion, as taught by Brinjes.

As one of ordinary skill in the art would appreciate, the suggestion/motivation for doing so would have been to use conventional handwriting recognition techniques to process a stored sequence of positions representing a handwriting input interface (Brinjes, pg. 5-6, par. 75-76).

Rafii as modified by Fong, Kloba and Brinjes however fails to expressly teach wherein the tracking of the handwriting motion is visible on the selected operation-plane

image according to the change in the at least part of the selected operation-plane image being projected.

Takekawa discloses an input detection device, analogous in art with that of Rafii as modified by Fong, Kloba and Brinjes wherein the tracking of the handwriting motion is visible on the selected operation-plane image according to the change in the at least part of the selected operation-plane image being projected (Takekawa, pg. 1, par. 4-5, display an image inputted by use of a coordinate input/detection device as a rewriting image on a top of an image being displayed).

At the time the invention was made, it would have been obvious to one having ordinary skill in the art to modify the input detection device of Rafii as modified by Fong, Kloba and Brinjes wherein the tracking of the handwriting motion is visible on the selected operation-plane image according to the change in the at least part of the selected operation-plane image being projected, as taught by Takekawa.

As one of ordinary skill in the art would appreciate, the suggestion/motivation for doing so would have been to display input handwritten on top of a displaying surface (Takekawa, pg. 1, par. 4-5).

In reference to claim 6, Rafii teaches a mobile communication terminal (Rafii, Fig. 1A, 80), comprising:

image projection means for projecting a selected one of a plurality of predefined operation-plane images that displays virtually an operation-plane of an operation device operated by users (Rafii, Fig. 1A, 145; col. 4, ll. 27-33);

operation detection means for detecting operation on the selected operation-plane image projected by the image projection means (Rafii, Fig. 1A, 20; col. 10, ll. 27-34);

data processing means for performing a predetermined data process based on the detection result of operation detected by the operation detection means (Fig. 3; col. 7, ll. 16-18);

wherein an application execution management means selects the selected one of the plurality of predefined operation-plane images for projection according to content of an application program and generates designation information that designates a recognition function corresponding to the selected predefined operation-plane image (Rafii, Fig. 1A,145; col. 4, ll. 27-33; Fig. 1A, 20; col. 10, ll. 27-34);

wherein the image projection means projects the selected predefined operation-plane image corresponding to the designated recognition function designated by the designation information received from an application execution management means, from among the plurality of predefined operation-plane images (Rafii, col. 4, ll. 27-33; projection of a grid or image);

and wherein the operation detection means has a plurality of kinds of mutually different recognition functions to recognize operation content by at least one of position,

direction and movement of an operation object on the plurality of predefined operation-plane images (Rafii, col. 12, ll. 33-47),

and detects operation on the selected operation-plane image by using the designated recognition function corresponding to the selected operation-plane image, the designated recognition function being designated from among the plurality of mutually different recognition functions by the designation information received from the application execution management means (Rafii, col. 10, l. 27-34).

Rafii however fails to expressly teach wherein at least part of the selected operation-plane image is changed during the operation on the selected operation-plane image according to detection of the operation content using the designated recognition function.

Fong discloses a virtual keyboard system, analogous in art with that of Rafii, wherein at least part of a selected image-plane image is changed during a operation on a selected operation-plane image according to detection of the operation content using a designated recognition function (Fong, fig. 3; pg. 2, par. 19).

At the time the invention was made, it would have been obvious to one having ordinary skill in the art to modify the operation detection means of Rafii, to include wherein at least part of a selected image-plane image is changed during the operation on a selected operation-plane image according to detection of the operation content using a designated recognition function, as taught by Fong.

As one of ordinary skill in the art would appreciate, the suggestion/motivation for doing so would have been to provide a feedback to a user that a key stroke has been entered from the virtual keyboard (Fong, pg. 2, par. 19).

Rafii as modified by Fong however fails to teach the application execution management means for managing application program execution environment of an application program selected from a plurality of application programs that is downloaded via a mobile communication network.

Kloba discloses a system for customizing content on a mobile device, analogous in art with that of Rafii as modified by Fong, containing application execution management means for managing application program execution environment of an application program selected from a plurality of application programs that is downloaded via a mobile communication network (Kloba, col. 4, ll. 37-41; col. 7, ll. 5-9; col. 11, ll. 15-21).

At the time the invention was made, it would have been obvious to one having ordinary skill in the art to modify the mobile communication terminal of Rafii as modified by Fong to include application execution management means for managing application program execution environment of an application program selected from a plurality of application programs that is downloaded via a mobile communication network, as taught by Kloba.

As one of ordinary skill in the art would appreciate, the suggestion/motivation for doing so would have been to enable the user to run multiple applications on a mobile device while on-line or off-line (Kloba, col. 1, ll. 36-39).

Rafii as modified by Fong and Kloba however fails to expressly teach wherein at least one of the plurality of mutually different recognition functions is a handwriting input function that detects movements of the operation object corresponding to a handwriting motion of a user, and wherein, for the designated recognition function being the handwritten input recognition function, the at least part of the selected operation-plane image is changed in a manner that tracks the handwriting motion.

Brinjes discloses a projected virtual input writing and display device, analogous in art with that of Rafii as modified by Fong and Kloba, wherein at least one of the plurality of mutually different recognition functions is a handwriting input function that detects movements of the operation object corresponding to a handwriting motion of a user, and wherein, for the designated recognition function being the handwritten input recognition function, the at least part of the selected operation-plane image is changed in a manner that tracks the handwriting motion (Brinjes, pg. 5-6, par. 75-76).

At the time the invention was made, it would have been obvious to one having ordinary skill in the art to modify the recognition function of Rafii as modified by Fong and Kloba wherein at least one of the plurality of mutually different recognition functions is a handwriting input function that detects movements of the operation object corresponding to a handwriting motion of a user, and wherein, for the designated recognition function being the handwritten input recognition function, the at least part of the selected operation-plane image is changed in a manner that tracks the handwriting motion, as taught by Brinjes.

As one of ordinary skill in the art would appreciate, the suggestion/motivation for doing so would have been allow users to display their input in a shared virtual model (Brinjes, pg. 5-6, par. 75-76).

Rafii as modified by Fong, Kloba and Brinjes however fails to expressly teach wherein the tracking of the handwriting motion is visible on the selected operation-plane image according to the change in the at least part of the selected operation-plane image being projected.

Takekawa discloses an input detection device, analogous in art with that of Rafii as modified by Fong, Kloba and Brinjes wherein the tracking of the handwriting motion is visible on the selected operation-plane image according to the change in the at least part of the selected operation-plane image being projected (Takekawa, pg. 1, par. 4-5, display an image inputted by use of a coordinate input/detection device as a rewriting image on a top of an image being displayed).

At the time the invention was made, it would have been obvious to one having ordinary skill in the art to modify the input detection device of Rafii as modified by Fong, Kloba and Brinjes wherein the tracking of the handwriting motion is visible on the selected operation-plane image according to the change in the at least part of the selected operation-plane image being projected, as taught by Takekawa.

As one of ordinary skill in the art would appreciate, the suggestion/motivation for doing so would have been to display input handwritten on top of a displaying surface (Takekawa, pg. 1, par. 4-5).

In reference to claim 7, Rafii teaches a mobile communication terminal (Rafii Fig. 1A, 80), comprising:

image projection means for projecting a selected one of a plurality of predefined operation-plane image that displays virtually an operation-plane of an operation device operated by users (Rafii, Fig. 1A, 145; col. 4, ll. 27-33);

operation detection means for detecting operation on the operation-plane image projected by the image projection means (Rafii, Fig. 1A, 20; col. 10, ll. 27-34);

data processing means for performing a predetermined data process based on the detection result of operation detected by the operation detection means (Fig. 3; col. 7, ll. 16-18);

memory means for storing a plurality of image data corresponding to each one of the plurality of predefined operation-plane images (Rafii, col. 12, ll. 48-53);

wherein an application execution management means selects the selected one of the plurality of predefined operation-plane images for projection according to content of an application program and generates designation information that designates a recognition function corresponding to the selected predefined operation-plane image (Rafii, Fig. 1A,145; col. 4, ll. 27-33; Fig. 1A, 20; col. 10, ll. 27-34);

and instruction generation means for generating an operation-plane image selection instruction in accordance with the content of the selected application program (Fig. 3; col. 7, ll. 16-18);

wherein the image projection means selects an image data from the plurality of image data memorized in the memory based on the operation-plane image selection instruction generated by the instruction generation means, and projects the operation-plane image of the selected image data (Rafii, col. 4, ll. 27-33; projection of a grid or image);

and wherein the application execution management means performs a data process corresponding to operation detected by the operation detection means in accordance with the content of the application program during execution of the selected application program and in accordance with the designation information that designates the designated recognition function (Rafii, col. 10, ll. 27-34).

Rafii however fails to expressly teach wherein at least part of the selected operation-plane image is changed during the operation on the selected operation-plane image according to detection of the operation content using the designated recognition function.

Fong discloses a virtual keyboard system, analogous in art with that of Rafii, wherein at least part of a selected image-plane image is changed during a operation on a selected operation-plane image according to detection of the operation content using a designated recognition function (Fong, fig. 3; pg. 2, par. 19).

At the time the invention was made, it would have been obvious to one having ordinary skill in the art to modify the operation detection means of Rafii, to include wherein at least part of a selected image-plane image is changed during the operation

on a selected operation-plane image according to detection of the operation content using a designated recognition function, as taught by Fong.

As one of ordinary skill in the art would appreciate, the suggestion/motivation for doing so would have been to provide a feedback to a user that a key stroke has been entered from the virtual keyboard (Fong, pg. 2, par. 19).

Rafii as modified by Fong however fails to teach the application execution management means for managing application program execution environment of an application program selected from a plurality of application programs that is downloaded via a mobile communication network.

Kloba discloses a system for customizing content on a mobile device, analogous in art with that of Rafii as modified by Fong, containing application execution management means for managing application program execution environment of an application program selected from a plurality of application programs that is downloaded via a mobile communication network (Kloba, col. 4, ll. 37-41; col. 7, ll. 5-9; col. 11, ll. 15-21).

At the time the invention was made, it would have been obvious to one having ordinary skill in the art to modify the mobile communication terminal of Rafii as modified by Fong to include application execution management means for managing application program execution environment of an application program selected from a plurality of application programs that is downloaded via a mobile communication network, as taught by Kloba.

As one of ordinary skill in the art would appreciate, the suggestion/motivation for doing so would have been to enable the user to run multiple applications on a mobile device while on-line or off-line (Kloba, col. 1, ll. 36-39).

Rafii as modified by Fong and Kloba however fails to expressly teach wherein at least one of the plurality of mutually different recognition functions is a handwriting input function that detects movements of the operation object corresponding to a handwriting motion of a user, and wherein, for the designated recognition function being the handwritten input recognition function, the at least part of the selected operation-plane image is changed in a manner that tracks the handwriting motion.

Brinjes discloses a projected virtual input writing and display device, analogous in art with that of Rafii as modified by Fong and Kloba, wherein at least one of the plurality of mutually different recognition functions is a handwriting input function that detects movements of the operation object corresponding to a handwriting motion of a user, and wherein, for the designated recognition function being the handwritten input recognition function, the at least part of the selected operation-plane image is changed in a manner that tracks the handwriting motion (Brinjes, pg. 5-6, par. 75-76).

At the time the invention was made, it would have been obvious to one having ordinary skill in the art to modify the recognition function of Rafii as modified by Fong and Kloba wherein at least one of the plurality of mutually different recognition functions is a handwriting input function that detects movements of the operation object corresponding to a handwriting motion of a user, and wherein, for the designated recognition function being the handwritten input recognition function, the at least part of

the selected operation-plane image is changed in a manner that tracks the handwriting motion, as taught by Brinjes.

As one of ordinary skill in the art would appreciate, the suggestion/motivation for doing so would have been allow users to display their input in a shared virtual model (Brinjes, pg. 5-6, par. 75-76).

Rafii as modified by Fong, Kloba and Brinjes however fails to expressly teach wherein the tracking of the handwriting motion is visible on the selected operation-plane image according to the change in the at least part of the selected operation-plane image being projected.

Takekawa discloses an input detection device, analogous in art with that of Rafii as modified by Fong, Kloba and Brinjes wherein the tracking of the handwriting motion is visible on the selected operation-plane image according to the change in the at least part of the selected operation-plane image being projected (Takekawa, pg. 1, par. 4-5, display an image inputted by use of a coordinate input/detection device as a rewriting image on a top of an image being displayed).

At the time the invention was made, it would have been obvious to one having ordinary skill in the art to modify the input detection device of Rafii as modified by Fong, Kloba and Brinjes wherein the tracking of the handwriting motion is visible on the selected operation-plane image according to the change in the at least part of the selected operation-plane image being projected, as taught by Takekawa.

As one of ordinary skill in the art would appreciate, the suggestion/motivation for doing so would have been to display input handwritten on top of a displaying surface (Takekawa, pg. 1, par. 4-5).

In reference to claim 15, Rafii teaches a mobile communication terminal (Rafii, Fig. 1A, 80), comprising:

an image projector that projects a selected one of a plurality of predefined operation-plane images that displays virtually an operation-plane of an operation device (Rafii, Fig. 1A, 145; col. 4, ll. 27-33);

an operation detector that detects operation on the selected operation-plane image projected by the image projector (Rafii, Fig. 1A, 20; col. 10, ll. 27-34);

a data processor that performs a predetermined data process based on the detection result of operation detected by the operation detector (Rafii, Fig. 3; col. 7, ll. 16-18);

wherein an application execution management means selects the selected one of the plurality of predefined operation-plane images for projection according to content of an application program and generates designation information that designates a designated recognition function corresponding to the selected predefined operation-plane image (Rafii, Fig. 1A,145; col. 4, ll. 27-33; Fig. 1A, 20; col. 10, ll. 27-34);

wherein the image projector projects the selected operation-plane image corresponding to the designated recognition function designated by the designation

information received from an application execution management device, from among the plurality of predefined operation-plane images (Rafii, col. 4, ll. 27-33; projection of a grid or image);

and wherein the operation detector has a plurality of kinds of mutually different recognition functions to recognize operation content by at least one of position, direction and movement of an operation object on the plurality of predefined operation-plane images (Rafii, col. 12, ll. 33-47),

and detects operation on the selected operation-plane image by using the designated recognition function designated from among the plurality of kinds of mutually different recognition functions by the designation information received from the application execution management device (Rafii, col. 10, ll. 27-34).

Rafii however fails to expressly teach wherein at least part of the selected operation-plane image is changed during the operation on the selected operation-plane image according to detection of the operation content using the designated recognition function.

Fong discloses a virtual keyboard system, analogous in art with that of Rafii, wherein at least part of a selected image-plane image is changed during a operation on a selected operation-plane image according to detection of the operation content using a designated recognition function (Fong, fig. 3; pg. 2, par. 19).

At the time the invention was made, it would have been obvious to one having ordinary skill in the art to modify the operation detection means of Rafii, to include wherein at least part of a selected image-plane image is changed during the operation

on a selected operation-plane image according to detection of the operation content using a designated recognition function, as taught by Fong.

As one of ordinary skill in the art would appreciate, the suggestion/motivation for doing so would have been to provide a feedback to a user that a key stroke has been entered from the virtual keyboard (Fong, pg. 2, par. 19).

Rafii as modified by Fong however fails to teach the application execution management means for managing application program execution environment of an application program selected from a plurality of application programs that is downloaded via a mobile communication network.

Kloba discloses a system for customizing content on a mobile device, analogous in art with that of Rafii as modified by Fong, containing application execution management means for managing application program execution environment of an application program selected from a plurality of application programs that is downloaded via a mobile communication network (Kloba, col. 4, ll. 37-41; col. 7, ll. 5-9; col. 11, ll. 15-21).

At the time the invention was made, it would have been obvious to one having ordinary skill in the art to modify the mobile communication terminal of Rafii as modified by Fong to include application execution management means for managing application program execution environment of an application program selected from a plurality of application programs that is downloaded via a mobile communication network, as taught by Kloba.

As one of ordinary skill in the art would appreciate, the suggestion/motivation for doing so would have been to enable the user to run multiple applications on a mobile device while on-line or off-line (Kloba, col. 1, ll. 36-39).

Rafii as modified by Fong and Kloba however fails to expressly teach wherein at least one of the plurality of mutually different recognition functions is a handwriting input function that detects movements of the operation object corresponding to a handwriting motion of a user, and wherein, for the designated recognition function being the handwritten input recognition function, the at least part of the selected operation-plane image is changed in a manner that tracks the handwriting motion.

Brinjes discloses a projected virtual input writing and display device, analogous in art with that of Rafii as modified by Fong and Kloba, wherein at least one of the plurality of mutually different recognition functions is a handwriting input function that detects movements of the operation object corresponding to a handwriting motion of a user, and wherein, for the designated recognition function being the handwritten input recognition function, the at least part of the selected operation-plane image is changed in a manner that tracks the handwriting motion (Brinjes, pg. 5-6, par. 75-76).

At the time the invention was made, it would have been obvious to one having ordinary skill in the art to modify the recognition function of Rafii as modified by Fong and Kloba wherein at least one of the plurality of mutually different recognition functions is a handwriting input function that detects movements of the operation object corresponding to a handwriting motion of a user, and wherein, for the designated recognition function being the handwritten input recognition function, the at least part of

the selected operation-plane image is changed in a manner that tracks the handwriting motion, as taught by Brinjes.

As one of ordinary skill in the art would appreciate, the suggestion/motivation for doing so would have been allow users to display their input in a shared virtual model (Brinjes, pg. 5-6, par. 75-76).

Rafii as modified by Fong, Kloba and Brinjes however fails to expressly teach wherein the tracking of the handwriting motion is visible on the selected operation-plane image according to the change in the at least part of the selected operation-plane image being projected.

Takekawa discloses an input detection device, analogous in art with that of Rafii as modified by Fong, Kloba and Brinjes wherein the tracking of the handwriting motion is visible on the selected operation-plane image according to the change in the at least part of the selected operation-plane image being projected (Takekawa, pg. 1, par. 4-5, display an image inputted by use of a coordinate input/detection device as a rewriting image on a top of an image being displayed).

At the time the invention was made, it would have been obvious to one having ordinary skill in the art to modify the input detection device of Rafii as modified by Fong, Kloba and Brinjes wherein the tracking of the handwriting motion is visible on the selected operation-plane image according to the change in the at least part of the selected operation-plane image being projected, as taught by Takekawa.

As one of ordinary skill in the art would appreciate, the suggestion/motivation for doing so would have been to display input handwritten on top of a displaying surface (Takekawa, pg. 1, par. 4-5).

Claim 18 is rejected as being dependent on rejected claim 15 as discussed above and further, Rafii as modified by Fong, Kloba, Brinjes and Takekawa teaches further comprising: a memory that stores the plurality of predefined operating-plane images (Rafii, col. 12, ll. 48-53).

Claim 19 is rejected as being dependent on rejected claim 4 as discussed above and further, Rafii as modified by Fong, Kloba, Brinjes and Takekawa teaches wherein changing the part of the selected operation-plane image includes at least one of: changing a color of the part of the selected operation plane image, changing a luminance of the part of the selected operation-plane image, and changing the part of the selected operation-plane image into a different image (Fong, fig. 3; pg. 2, par. 19).

Claim 20 is rejected as being dependent on rejected claim 6 as discussed above and further, Rafii as modified by Fong, Kloba, Brinjes and Takekawa teaches wherein changing the part of the selected operation-plane image includes at least one of:

changing a color of the part of the selected operation plane image, changing a luminance of the part of the selected operation-plane image, and changing the part of the selected operation-plane image into a different image (Fong, fig. 3; pg. 2, par. 19).

Claim 21 is rejected as being dependent on rejected claim 7 as discussed above and further, Rafii as modified by Fong, Kloba, Brinjes and Takekawa teaches wherein changing the part of the selected operation-plane image includes at least one of: changing a color of the part of the selected operation plane image, changing a luminance of the part of the selected operation-plane image, and changing the part of the selected operation-plane image into a different image (Fong, fig. 3; pg. 2, par. 19).

Claim 22 is rejected as being dependent on rejected claim 15 as discussed above and further, Rafii as modified by Fong, Kloba, Brinjes and Takekawa teaches wherein changing the part of the selected operation-plane image includes at least one of: changing a color of the part of the selected operation plane image, changing a luminance of the part of the selected operation-plane image, and changing the part of the selected operation-plane image into a different image (Fong, fig. 3; pg. 2, par. 19).

Claims 12, 13, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rafii et al. (6,614,422) as modified by Fong et al. (US 2005/0012721), Kloba (US 7,263, 547), Brinjes (US 2002/0171633) and Takekawa (US 2001/0019325), and further in view of Lieberman (US 2002/0075240).

Claim 12 is rejected as being dependent on claims 4, 6, or 7 as discussed above and further, Rafii as modified by Fong, Kloba, Brinjes and Takekawa however fails to expressly teach a mobile communication terminal wherein the mobile communication terminal is configured by using a light source, a spatial light modulation unit for modulating light output from the light source, and an optical system for projection imaging that projects by imaging a light image output from the spatial light modulation unit on an external projection screen, the mobile communication terminal comprises an optical system for diffused illumination for homogenously illuminating by diffusing light output from the light source to an external illumination plane, and the light source and the spatial light modulation unit are both shared to generate a light image subject to projection and generate a light subject to diffused illumination.

Lieberman discloses a virtual data entry device, analogous in art with that of Rafii as modified by Fong, Kloba, Brinjes and Takekawa, wherein the mobile communication terminal is configured by using a light source, a spatial light modulation unit for modulating light output from the light source, and an optical system for projection imaging that projects by imaging a light image output from the spatial light modulation

unit (Lieberman, Fig. 28; pg. 10, par. 184) on an external projection screen (Lieberman, Fig. 29; pg. 10, par. 186),

the mobile communication terminal comprises an optical system for diffused illumination (Lieberman, pg. 10, par. 184) for homogenously illuminating by diffusing light output from the light source to an external illumination plane (Lieberman, Fig. 28),

and the light source and the spatial light modulation unit are both shared to generate a light image subject to projection and generate a light subject to diffused illumination (Lieberman, pg. 6, par. 135; light source is a single laser source).

At the time the invention was made, it would have been obvious to one having ordinary skill in the art to modify the mobile communication terminal of Rafii as modified by Fong, Kloba, Brinjes and Takekawa wherein the mobile communication terminal is configured by using a light source, a spatial light modulation unit for modulating light output from the light source, and an optical system for projection imaging that projects by imaging a light image output from the spatial light modulation unit on an external projection screen, the mobile communication terminal comprises an optical system for diffused illumination for homogenously illuminating by diffusing light output from the light source to an external illumination plane and the light source and the spatial light modulation unit are both shared to generate a light image subject to projection and generate a light subject to diffused illumination, as taught by Lieberman.

As one of ordinary skill in the art would appreciate, the suggestion/motivation for doing so would have been to provide an expanded input device for a small sized PDA or cell phone (Lieberman, pg. 1, par. 9).

Claim 13 is rejected as being dependent on rejected claim 12 as discussed above and further Rafii as modified by Fong, Kloba, Brinjes, Takekawa and Lieberman teaches a mobile communication terminal, the mobile communication terminal comprising (Rafii, Fig. 1A, 80):

a camera unit that generates image data by transforming the light image to electric signals (Rafii, col. 2, ll. 21-36);

and an optical system for camera imaging for imaging the light image subject to shooting on the camera unit (Rafii, col. 2, ll. 21-57);

wherein the operation detection means is configured by using operation object detection means for detecting at least one of position, direction, and movement of an operation object operating on the operation-plane image and operation detection data generation means for generating operation detection data corresponding to position, direction or movement of the operation object based on the detection results of the operation detection means (Rafii, col. 2, ll. 21-57);

and the camera unit and the optical system for camera imaging are both shared as the operation object detection means (Rafii, col. 2, ll. 21-57).

Claim 16 is rejected as being dependent on rejected claim 15 as discussed above and further Rafii as modified by Fong, Kloba, Brinjes and Takekawa however

fails to expressly teach a mobile communication terminal wherein the mobile communication terminal is configured by using a light source, a spatial light modulation unit for modulating light output from the light source, and an optical system for projection imaging that projects by imaging a light image output from the spatial light modulation unit on an external projection screen, the mobile communication terminal comprises an optical system for diffused illumination for homogenously illuminating by diffusing light output from the light source to an external illumination plane, and the light source and the spatial light modulation unit are both shared to generate a light image subject to projection and generate a light subject to diffused illumination.

Lieberman discloses a virtual data entry device, analogous in art with that of Rafii as modified by Fong, Kloba, Brinjes and Takekawa, wherein the mobile communication terminal is configured by using a light source, a spatial light modulation unit for modulating light output from the light source, and an optical system for projection imaging that projects by imaging a light image output from the spatial light modulation unit (Lieberman, Fig. 28; pg. 10, par. 184) on an external projection screen (Lieberman, Fig. 29; pg. 10, par. 186),

wherein the mobile communication terminal comprises an optical system for diffused illumination (Lieberman, pg. 10, par. 184) for homogenously illuminating by diffusing light output from the light source to an external illumination plane (Lieberman, Fig. 28),

and wherein the light source and the spatial light modulation unit are both shared to generate a light image subject to projection and generate a light subject to diffused illumination (Lieberman, pg. 6, par. 135; light source is a single laser source).

At the time the invention was made, it would have been obvious to one having ordinary skill in the art to modify the mobile communication terminal of Rafii as modified by Fong, Kloba, Brinjes and Takekawa wherein the mobile communication terminal is configured by using a light source, a spatial light modulation unit for modulating light output from the light source, and an optical system for projection imaging that projects by imaging a light image output from the spatial light modulation unit on an external projection screen, wherein the mobile communication terminal comprises an optical system for diffused illumination for homogenously illuminating by diffusing light output from the light source to an external illumination plane and wherein the light source and the spatial light modulation unit are both shared to generate a light image subject to projection and generate a light subject to diffused illumination, as taught by Lieberman.

As one of ordinary skill in the art would appreciate, the suggestion/motivation for doing so would have been to provide an expanded input device for a small sized PDA or cell phone (Lieberman, pg. 1, par. 9).

Claim 17 is rejected as being dependent on rejected claim 16 as discussed above and further Rafii as modified by Fong, Kloba, Brinjes, Takekawa and Lieberman teaches a mobile communication terminal, the mobile communication terminal comprising (Rafii, Fig. 1A, 80):

a camera unit that generates image data by transforming the light image to electric signals (Rafii, col. 2, ll. 21-36);

and an optical system for camera imaging for imaging the light image subject to shooting on the camera unit (Rafii, col. 2, ll. 21-57);

wherein the operation detector is configured by using an operation object detector that detects at least one of position, direction, and movement of an operation object operating on the operation-plane image and operation detection data generator that generates operation detection data corresponding to position, direction or movement of the operation object based on the detection results of the operation object detector (Rafii, col. 2, ll. 21-57);

and the camera unit and the optical system for camera imaging are both shared as the operation object detector (Rafii, col. 2, ll. 21-57).

Response to Arguments

Applicant's arguments with respect to claims 4, 6-7, 12-13 and 15-22 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHARLES V. HICKS whose telephone number is (571)270-7535. The examiner can normally be reached on Monday-Thursday from 7:30 to 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexander Beck, can be reached on 571-272-7765. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://portal.uspto.gov/external/portal. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Alexander S. Beck/
Supervisory Patent Examiner, Art Unit 2629